Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] What is claimed is:

1.A voltage-detecting method for detecting power status of a battery with a voltage-detecting circuit, the voltage-detecting circuit comprising:

a processor comprising a first general purpose input/output (GPIO) port and a second GPIO port;

a comparator having a first input end connected to the battery, a second input end, and an output end connected to the first GPIO port;

a first resistor connected between the second input end of the comparator and a first voltage source;

a first power segment detection circuit connected in parallel with the first resistor, the first power segment detection circuit comprising a third resistor and a first switch serially connected to the third resistor, the first switch connected to the second GPIO port; and

a second resistor connected between the second input end of the comparator and a second voltage source;

the voltage-detecting method comprising:

outputting a first control signal with the processor to control the first switch at the second GPIO port by determining a voltage level at the first GPIO port; and

outputting a power signal with the processor by determining a voltage level at the first GPIO port.

[c2] 2.The voltage-detecting method of claim 1 further comprising:
transmitting the power signal to a display device to display the power status of the battery.

[c3] 3.The voltage-detecting method of claim 1, wherein the first switch is a metal oxide semiconductor (MOS) transistor.

[c4] 4.The voltage-detecting method of claim 3, wherein the MOS transistor is integrated in an application specific integrated circuit (ASIC).

[c5] 5.The voltage-detecting method of claim 1, wherein the processor further comprises a third GPIO port, and the voltage-detecting method further comprises:
providing at least a second power segment detection circuit connected in parallel with the second resistor, the second power segment detection circuit comprising a fourth resistor and a second switch serially connected to the fourth resistor, the second switch connected to the third GPIO port of the processor; and
outputting a second control signal with the processor to control the second switch at the third GPIO port by de-

termining a voltage level at the first GPIO port.

[c6] 6.The voltage-detecting method of claim 5, wherein the second switch is a MOS transistor.

[c7] 7.The voltage-detecting method of claim 6, wherein the MOS transistor is integrated in an ASIC.

[c8] 8.The voltage-detecting method of claim 1, wherein the first voltage source is ground.

[c9] 9.The voltage-detecting method of claim 1, wherein the second voltage source is ground.

[c10] 10.The voltage-detecting method of claim 1, wherein the comparator is integrated in an ASIC.

[c11] 11.A voltage-detecting circuit comprising:
a processor comprising a first GPIO port and a second GPIO port;
a comparator having a first input end connected to a battery, a second input end, and an output end connected to the first GPIO port;
a first resistor connected between the second input end of the comparator and a first voltage source;
a first power segment detection circuit connected in parallel with the first resistor, the first power segment detection circuit comprising a third resistor and a first

switch serially connected to the third resistor, the first switch connected to the second GPIO port; and
a second resistor connected between the second input end of the comparator and a second voltage source;
wherein the processor outputs a first control signal to control the first switch at the second GPIO port by determining a voltage level at the first GPIO port and then generates a power signal by determining a voltage level at the first GPIO port.

[c12] 12.The voltage-detecting circuit of claim 11 further comprising:
a display device connected to the first GPIO port of the processor for displaying power status of the battery.

[c13] 13.The voltage-detecting circuit of claim 11, wherein the first switch is a MOS transistor.

[c14] 14.The voltage-detecting circuit of claim 13, wherein the MOS transistor is integrated in an ASIC.

[c15] 15.The voltage-detecting circuit of claim 11, wherein the processor further comprises a third GPIO port, and the voltage-detecting circuit further comprises:
at least a second power segment detection circuit connected in parallel with the second resistor, the second power segment detection circuit comprising a fourth re-

sistor and a second switch serially connected to the fourth resistor, the second switch connected to the third GPIO port of the processor;

wherein the processor outputs a second control signal to control the second switch at the third GPIO port by determining a voltage level at the first GPIO port.

[c16] 16.The voltage-detecting circuit of claim 15, wherein the second switch is a MOS transistor.

[c17] 17.The voltage-detecting circuit of claim 16, wherein the MOS transistor is integrated in an ASIC.

[c18] 18.The voltage-detecting circuit of claim 11, wherein the first voltage source is ground.

[c19] 19.The voltage-detecting circuit of claim 11, wherein the second voltage source is ground.

[c20] 20.The voltage-detecting circuit of claim 11, wherein the comparator is integrated in an ASIC.